Section XI: Alcohol Quantitation

I. Introduction:

Alcohol samples are analyzed and quantitated by GC/FID.

II. Reagents:

A. N-Propanol (internal standard and blank)
B. 5.00% Ethanol (standard)
C. Methanol (solvent rinse)

III. Equipment:

A. 25 mL volumetric flask (2)
B. Glass pipettes
C. 2 mL autosampler vials with Teflon caps
D. GC/FID: HP 5890

IV. Procedure:

A. Prepare 4.75% Ethanol standard in a 25 or 50 mL volumetric flask.
B. Transfer 1-2 mL to an autosampler vial and cap.
C. Prepare N-Propanol Blank and add to an autosampler vial.
D. In a 25 mL volumetric flask, add 1 mL of N-Propanol.
E. Fill to volume with the liquid sample and invert to mix solution.
F. Transfer sample to an autosampler vial and cap. (NOTE: depending on suspect sample, dilutions may be necessary).
G. Place the vials on the autosampler with the following sequence: Standard, Blank, Sample, Standard. The standard will be run 3 times for calibration purposes, then again at the end as a reference/quantitation. Also, the sample will be run twice for result accuracy and verification.

H. The GC/FID conditions are:
Method: ALC5%.MTH
Oven:
Initial Temp: 35°C
Initial Time: 3.50 min.
Max. Temp: 120°C
Rate: 0.0 °/min.
Inlet: (front injector only)
Inlet Temp: 150°C
Gas Type: Helium
Detector: (front detector only)

Temp: 200°C
Makeup Gas: Helium
Column:
HP WAX 15m x 0.25mm x 0.25um

I. If alcohol id present, the instrument will detect a peak at approximately 1.1 minutes for ethanol (alcohol) and approximately 2.0 minutes for N-Propanol. A report will be generated along with accompanying chromatograph (See graph, last page). The report will contain the percentage of each analyte.

V. Results:

A. Make sure that the results for all the standard runs are consistent with each other as well as consistent with the known percentage of alcohol in the standard (approximately 5%).
B. Record the average alcohol percentage of the two sample runs in the logbook and transfer the results to appropriate evidence cards, as well as any paperwork that came with the sample. Be sure to include the date of analysis, result, and initials on the evidence cards.
C. All reports generated from the instrument should be filed so they may be accessed at a later date, if necessary.